

REMARKS

[0001] The Examiner rejected Claims 1-10 and 17-45, but notes that Claims 11-16 are allowable. The Examiner rejected Claims 1-10 and 17-45 under 35 U.S.C. §103(a) as being unpatentable over US Patent No. 5,615,329 to Kern et al (hereinafter "Kern") in view of US Patent No. 5,771,367 to Beardsley et al. (hereinafter "Beardsley").

[0002] The claims have been amended to further clarify Claims 1-10 and 17-45. For reasons set forth below, Applicant respectfully requests that the rejections be withdrawn and that claims 1-45 be allowed.

REJECTION OF CLAIM 1-10 UNDER 35 U.S.C. §103(a)

[0003] The Examiner rejected independent Claims 1-10 under 35 USC §103(a) in view of Kern and Beardsley. Applicant has amended Claims 1 to further clarify the invention.

[0004] Specifically, claim 1, as amended, specifies "analyzing a *cache control structure* of the *coupling facility* to determine which data was previously assigned to the coupling facility", and "performing a *nominate cache process* to select a new storage location for the data previously assigned to the coupling facility" See amended claim 1.

[0005] Kern describes a method and system for remote data duplexing See Fig. 1 and Fig. 2. Duplexing, a method common in the art of data recovery, requires configuration of redundant components for data "shadowing", also commonly referred to as "mirroring". Duplexing configurations require preallocation of storage resources dedicated exclusively to data recovery See column 2 line 59 through column 3 line 26. Kern fails to teach a method of data recovery that does not require preallocation of storage resources. Furthermore, Kern's invention is limited to recovery of Direct Access Storage Device (DASD) resources See Fig. 1. Kern does not teach a method or system for recovery of data located in a global cache storage on a coupling facility. Due to the dynamic nature of data stored within such a data cache, the process of recovery is inherently different and more complex than a method that may be implemented on a DASD

resource which contains relatively static data. Kern teaches neither a cache control structure nor the analysis thereof to determine which data was previously assigned to the coupling facility. Additionally, Kern fails to teach “a nominate cache process to select a new storage location for the data previously assigned to the coupling facility,” because Kern relies on preallocation of storage space and continuous data backup for data recovery See column 2 line 59 through column 3 line 26. Kern is directed toward preallocation of storage space, not *providing a new storage location subsequent to coupling facility failure*.

[0006] Although Beardsley does teach recovery of cache data, the method and system described in Beardsley require preallocation of storage space. See column 4 lines 46-49. In the embodiments described by Beardsley, cache data is “backed up in cross-paired nonvolatile memory.” The data backup process takes place prior to a failure event, therefore preallocation of storage space is required. Since preallocation and prior backup is required, the steps of “analyzing a cache control structure to determine which data was previously assigned to the coupling facility”, and “performing a nominate cache process to select a new storage location for the data previously assigned to the coupling facility” are not taught by Beardsley. The present invention overcomes Kern and Beardsley by providing “a method and system for recovery from a coupling facility failure *without preallocating space*” See preamble to Claim 1.

[0007] To establish a *prima facie* case of obviousness, the combination of the prior art references must teach or suggest all the claim limitations. MPEP § 2142. In addition, “it is insufficient that the prior art disclosed the components of the patented device, either separately or used in other combinations; there must be some teaching, suggestion, or incentive to make the combination made by the inventor.” *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934 (Fed. Cir. 1990).

[0008] Applicant respectfully asserts that Kern and Beardsley fail to teach or disclose each element and limitation in amended independent Claim 1. Namely, Kern and Beardsley fail to teach “a method for transparently recovering from a coupling facility failure, the method comprising the steps... [a) through d)] ...wherein steps a) through d) are performed without requiring preallocation of storage space in the new storage location prior to the coupling facility failure.” Additionally, Kern and Beardsley fail to teach the method described above wherein step b) includes “analyzing a cache control structure of the coupling facility to determine which data was previously assigned to the coupling facility” and step c) includes “performing a nominate cache process to select a new storage location for the data previously assigned to the coupling facility.” To establish a *prima facie* case of obviousness, the combination of the prior art references must teach or suggest all the claim limitations. MPEP § 2142. The identical invention is not shown in as complete detail as is contained in the patent claim. *Id.* Applicant respectfully submits that independent Claim 1 is patentably distinct and nonobvious over Kern and Beardsley. Furthermore, since neither Kern nor Beardsley teach or disclose a method for recovery that does not require preallocation of storage space, there is no motivation to combine Kern and Beardsley to that end.

[0009] The Examiner rejected claims 2-10 under 35 USC §103(a) in view of Kern and Beardsley. However, since Claims 2-10 depend from amended Claim 1, the Applicant respectfully submits that Claims 2-10 are nonobvious for at least the same reasons as Claim 1.

REJECTION OF CLAIMS 17-26 UNDER 35 U.S.C. §103(a)

[0010] The Examiner rejected Claims 17-26 under 35 U.S.C. §103(a) as being unpatentable over Kern in view of Beardsley. Applicant has amended Claim 17 to further clarify the invention.

[0011] Specifically, Claim 17, as amended, includes amendments to steps b) and c) as described above in relation to amendments to Claim 1. Additionally, Claim 17, as amended, specifies "a) obtaining serialization on a cache control structure of a coupling facility in a parallel sysplex configuration to prevent access to the coupling facility subsequent to a coupling facility failure." *See amended Claim 17.*

[0012] Applicant respectfully asserts that Kern and Beardsley fail to teach or disclose each element and limitation in amended independent Claim 17. Specifically, Kern and Beardsley fail to disclose the distinct process by which access to a failed coupling facility is prevented subsequent to a coupling facility failure. Kern and Beardsley fail to teach obtaining serialization on a cache control structure of a coupling facility in a parallel sysplex configuration as a method to prevent access to the coupling facility subsequent to a coupling facility failure. Applicant respectfully submits that independent Claim 17 is therefore nonobvious over Kern and Beardsley.

[0013] The Examiner rejected claims 18-26 under 35 USC §103(a) in view of Kern and Beardsley. However, since Claims 18-26 depend from amended Claim 17, the Applicant respectfully submits that Claims 18-26 are also nonobvious over Kern and Beardsley.

REJECTION OF CLAIMS 27-35 UNDER 35 U.S.C. §103(a)

[0014] The Examiner rejected Claims 27-35 under 35 U.S.C. §103(a) as being unpatentable over Kern in view of Beardsley. Applicant has amended independent Claim 27 to further clarify the invention.

[0015] Specifically, Claim 27, as amended, specifies "d) assigning the data previously assigned to the coupling facility to the new storage location, the step of assigning the data previously assigned to the coupling facility to the new storage location further comprises: d1)

invalidating buffers associated with the data previously assigned to the coupling facility" *see* amended Claim 27. Consequently, Claim 32 was amended to delete redundant references to step d1).

[0016] Applicant respectfully asserts that Kern and Beardsley fail to teach or disclose each element and limitation in amended independent Claim 27. Specifically, Kern and Beardsley fail to teach reassignment of data previously assigned to the coupling facility to a new storage location. Furthermore, Kern and Beardsley fail to teach the step of "invalidating buffers associated with the data previously assigned to the coupling facility." Kern and Beardsley make no mention of buffers, nor a need to invalidate buffers associated with the data previously assigned to the coupling facility. Applicant respectfully submits that independent Claim 27 is nonobvious over Kern and Beardsley.

[0017] The Examiner rejected claims 28-35 under 35 USC §103(a) in view of Kern and Beardsley. However, since Claims 28-35 depend from amended Claim 27, the Applicant respectfully submits that Claims 28-35 are also nonobvious over Kern and Beardsley.

REJECTION OF CLAIMS 36-45 UNDER 35 U.S.C. §103(a)

[0018] The Examiner rejected Claims 36-45 under 35 U.S.C. §103(a) as being unpatentable over Kern in view of Beardsley. Applicant has amended Claim 36 to further clarify the invention.

[0019] Specifically, Claim 36, as amended, specifies "d) assigning the data previously assigned to the coupling facility to the new storage location, the step of assigning data previously assigned to the coupling facility to the new storage location further comprises moving *a control structure* of the data previously assigned to the coupling facility to a *cache control structure* representing the new storage location" *See* amended Claim 36. Consequently, Claim 42 was amended to delete subject matter also described in amended Claim 36.


[0020] Applicant respectfully asserts that Kern and Beardsley fail to teach or disclose each element and limitation in amended independent Claim 36. Specifically, Kern and Beardsley fail to show a process by which the cache data assigned to the coupling facility is assigned to a

new storage location. Namely, "moving a control structure of the data previously assigned to the coupling facility to a cache control structure representing a new storage location". Applicant respectfully submits that independent Claim 36 is nonobvious over Kern and Beardsley.

[0021] The Examiner rejected claims 37-45 under 35 USC §103(a) in view of Kern and Beardsley. However, since Claims 37-45 depend from amended Claim 36, the Applicant respectfully submits that Claims 37-45 are also nonobvious over Kern and Beardsley.

[0022] In view of the foregoing, Applicants submit that the application is in condition for allowance. In the event any questions or issues remain that can be resolved with a phone call, the Examiner is respectfully requested to initiate a telephone conference with the undersigned.

Respectfully submitted,



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